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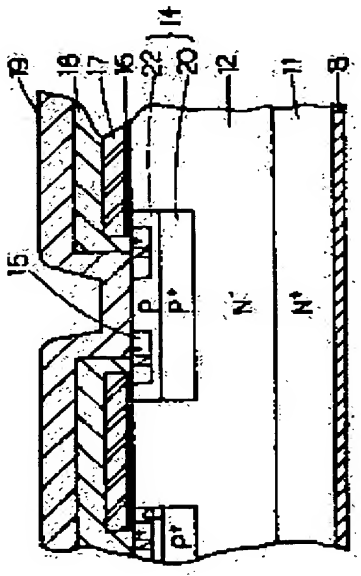
(54) INSULATED GATE TYPE FIELD-EFFECT TRANSISTOR

(57)Abstract:

PURPOSE: To increase breakdown resistance by using a semiconductor substrate in which a P+ layer in high impurity concentration is buried previously to the lower section of a P type base region in a channel section in the N type semiconductor substrate.

CONSTITUTION: An N- type epitaxial layer 12 is formed onto one surface of an N+ type high-concentration Si substrate 11, and a drain region is shaped by these substrate 11 and layer 12. A channel-section base region 14 consisting of a P+ base layer 20 and a P base layer 22 is formed into the layer 12 while N+ type source regions 15 are each shaped into the layer 22. The region 14 forms a base in a parastic transistor. Gate electrodes 17 are formed on the region 12 through gate insulating films 16 extended up to the upper sections of the region 14 and the regions 15. A lower section in the region 14 is formed in the P+ layer in high concentration in a double diffused type MOSFET having said constitution, thus preventing the breakdown of an FET generated by the operation of a parastic N-P-N transistor on the reverse recovery of a free wheel diode.



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